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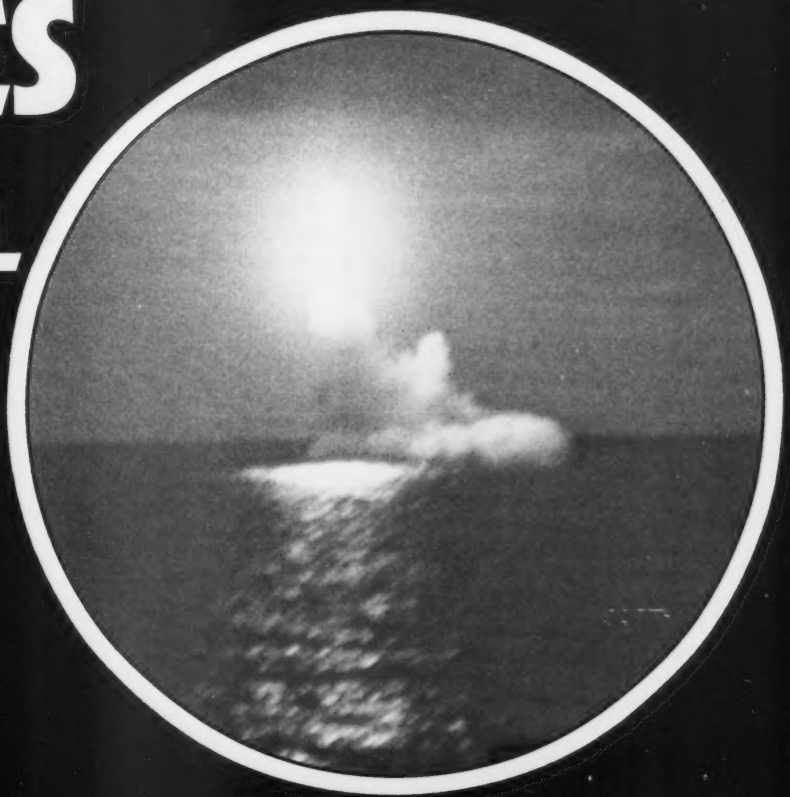
THE ROLE OF U.S. THEATER NUCLEAR FORCES IN NATIONAL DEFENSE



TNFs: CRITICAL U.S. DEFENSE REQUIREMENTS

During the past few years the U.S. theater nuclear force (TNF) posture has received increasing attention, both outside and within the Defense Department. Concerns have centered on our policy for employment and deployment of these nuclear weapons as well as on their security and survivability. In effect, the following questions are being asked:

- What is the contribution of theater nuclear forces to deterrence, and how do they relate to our conventional capabilities?
- How might they be used? What are we doing to modernize TNFs?
- Are the weapons secure in their peacetime sites and survivable in wartime?

The answers to these questions begin with a review of the basis for U.S. theater nuclear forces.

BASIS FOR TNF

The United States maintains theater nuclear forces (TNFs) in conjunction with conventional and strategic forces, for deterrence of and defense against aggression in the Pacific and European theaters and to control escalation should deterrence fail. Today the greater part of our overseas TNFs are deployed in the European theater as part of the U.S. commitment to the North Atlantic Treaty Organization (NATO).

Defense and deterrence of aggression are, and always have been, NATO's primary objectives. However, the NATO strategy, which defines the role for theater nuclear weapons, has changed over the years. During the early years of the Alliance, nuclear weapons were seen as deterring Soviet aggression by the threat they posed of massive strategic retaliation. The nuclear forces then were primarily U.S. B-36 and forward-based B-47 strategic bombers.

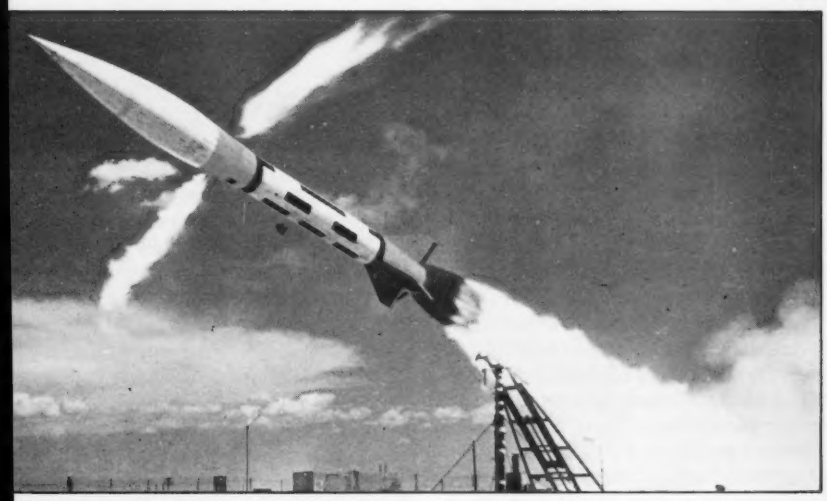
In the late 1950s and early 1960s NATO's in-theater nuclear weapons were seen as enhancing deterrence of Soviet aggression by providing superior firepower to compensate for what was considered an unfavorable conventional balance. NATO strategy for nuclear forces then involved primarily theater-based dual capable systems: these included the Army's 280 mm and 8-inch artillery, Honest John, Corporal and Lacrosse missiles, Atomic Demolition Munitions (ADMs), and Nike Hercules surface-to-air missiles (SAMs), the Air Force's F-100 and F-105 tactical aircraft; and the Navy's carrier-based aircraft. In addition, nuclear armed Jupiter and Thor medium-range ballistic missiles were deployed in Europe.

By the late 1960s, as the Soviet Union approached strategic parity with the United States and deployed TNFs, NATO moved to improve its conventional forces and adopted the current strategy of flexible response. Under this strategy, we rely most heavily on conventional forces to deter non-nuclear aggression. The theater nuclear capability is relied on for deterrence of Warsaw Pact nuclear use and further enhances deterrence of conventional aggression by increasing the risk to the Pact that conventional aggression could lead to nuclear conflict, and that this conflict could ultimately lead to the use of strategic forces. If deterrence failed, and the Pact used nuclear weapons or NATO's conventional forces could not contain Pact forces, we could consider the use of theater nuclear forces. The NATO objective in either of these situations—war termination on terms acceptable to the Alliance—would be sought by executing the appropriate options. These options would give NATO the capability to put more at risk for the Warsaw Pact nations than they would initially expect, should cause them to reconsider their actions by altering their assessment of an early victory, and thus could bring about a rapid termination and settlement of the conflict on acceptable terms.

Last year's Department of Defense Report to the Congress, and the report on *The Theater Nuclear Force Posture in Europe*, prepared in compliance with Section 302(d) of Public Law 93–365, described in detail the current NATO strategy of flexible response and the nature of U.S. theater nuclear forces in Europe. As pointed out in those reports, NATO relies on a mutually supporting mix of conventional, theater nuclear, and strategic forces for deterrence. NATO's theater nuclear systems now include U.S. and allied in-theater dual-capable artillery, tactical air, ADMS, SAMs, and short- and long-range land-based surface-to-surface missiles, as well as U.S. Poseidon and United Kingdom (UK) submarine-launched ballistic missiles (SLBMs).

The United Kingdom maintains four nuclear-powered fleet ballistic missile submarines similar to the Polaris submarine. Each is armed with 16

In the late 1950s and early '60s NATO strategy for nuclear forces involved theater-based dual capable systems such as the Navy aircraft shown silhouetted (below) aboard a U.S. aircraft carrier. Another '50s system, the Army's *Honest John* rocket (below, left) is being replaced in some allied forces by *Lance* tactical missiles. Cover photo is a Poseidon missile launch from the Fleet Ballistic Submarine, USS Nathan Hale.



U.S.-supplied Polaris missiles, which carry UK-developed and owned nuclear warheads. The United Kingdom also has nuclear bombs which can be delivered by her Buccaneer and Jaguar tactical aircraft and Vulcan medium bombers.

France maintains several fleet ballistic missile submarines, a number of intermediate-range ballistic missiles, and bombers for strategic delivery of nuclear warheads. Her tactical nuclear delivery capability consists of fighter-bombers and the Pluton surface-to-surface missile system.

Most of our NATO allies participate in Programs of Cooperation (POC) under which the United States would provide the nuclear weapons for their delivery systems. These warheads remain in the custody of U.S. personnel until released by the U.S. President for actual use. Through these Programs of Cooperation, we assure that they have a capability to contribute to their defense if the use of nuclear weapons should be authorized.

The United States does not participate in Programs of Cooperation outside of NATO. Our Asian allies continue to rely on U.S. assurances of continuing protection which, in turn, have reduced their need for their own nuclear capabilities. The presence of nuclear capable U.S. forces in the Pacific area, together with the capabilities of our Pacific fleet, represent a credible deterrent to the use of nuclear weapons in this theater. Should deterrence fail, these forces broaden the range of options available for response in conjunction with our Asian allies.

The size, composition, and characteristics of our theater nuclear forces depend on a number of factors. Several of these, including the role of TNFs and the TNFs of the United

States' NATO allies, have been described. The most important of the other factors is the theater nuclear capabilities of potential enemies.

THE TNF THREAT

NATO understanding of Warsaw Pact military strategy and doctrine for a possible war in Europe is based on close study of Pact training exercises, force structure, organization, training, Research and Development (R&D), policy declarations and unclassified writings. Observations indicate that a major danger lies in a massive Warsaw Pact advance into Western Europe characterized by surprise, shock, and rapid air and ground exploitation.

Doctrine and exercises indicate that the Warsaw Pact places high value on tactical surprise with nuclear weapons. Their doctrine states that if the Warsaw Pact believes NATO is about to launch a major nuclear attack, it will seek to preempt with nuclear strikes on military targets. Moreover, there are clear indications that the Pact fully appreciates the initial advantage to be gained by a first use of theater nuclear forces in the absence of NATO indications to use nuclear weapons.

Massive concentration of firepower on key military targets early in a conflict is a strong tenet of Pact planning. The objective is to rapidly disrupt and demoralize NATO's forces, creating opportunities for armored blitzkrieg attacks. Prime targets for Pact attacks are NATO nuclear delivery units, air bases, ground combat forces, command posts and support units.

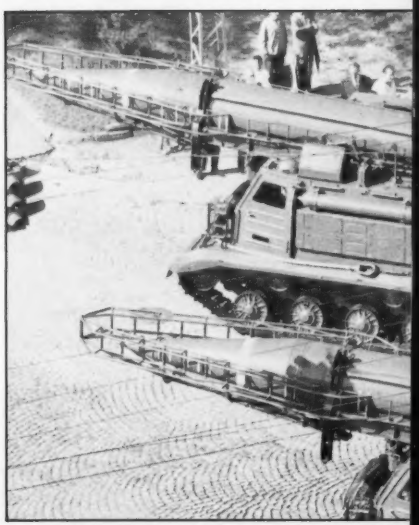
Warsaw Pact armored forces and their immediate support (artillery, tactical air, SAMs) are postured and trained to exploit nuclear attacks by rapid, deep, multiple thrusts to destroy remaining NATO forces and seize NATO territory. These armored forces are equipped for operations in a nuclear and chemical environment, so as to maintain movement and keep constant pressure on NATO forces.

The question is whether, in a war in Europe, the Warsaw Pact actually would follow this highly escalatory doctrine, and if so, how effective would their attacks be. National leaders are not, of course, constrained to follow the doctrine their military commanders use to guide training or exercise forces in peacetime, nor do training exercises necessarily indicate most probable tactics. In fact, in past crises in which the United States or NATO nations have shown a determination to use the force necessary to protect their interests, Soviet leaders have acted cautiously. Nevertheless, Warsaw Pact forces are postured primarily for the type of theater-wide nuclear strikes pictured in their doctrine and exercises; this is evidenced, for example, by the Pact's strong dependence on surface-to-surface missiles estimated to have relatively poor accuracy and large yields.

Even as the Soviets have improved their conventional capability and may have recognized that conventional war in Europe need not necessarily escalate to nuclear war, their forces, doctrine and strategy remain fully capable of combined conventional and nuclear operations. The manner in which the Soviets have approached conventional force improvements has also provided them with significantly improved theater nuclear capabilities. Their TNFs appear to remain an integral part of their war-fighting capabilities. Moreover, their equipment as well as their training for a radiological environment indicate their continuing seriousness about nuclear warfare.

Soviet TNFs, in addition to intermediate range ballistic missiles (IRBMs), include tactical and intermediate-range aircraft, tactical rockets (Frog), surface-to-surface missiles (Scud, Scaleboard), land-based and sea-based medium and intermediate-range ballistic missiles, (SS-4s and 5s, SS-N-4s and 5s), and cruise missile configured surface ships and submarines. All these forces could be used for nuclear attacks on targets in Europe or Asia. The Soviet Union has provided her Warsaw Pact allies with Frog and Scud missile systems, and with nuclear capable tactical aircraft.

The Soviets continue to increase the flexibility with which they can use nuclear weapons. Older tactical aircraft are being replaced with modern



Soviet TNFs include tactical rockets, nicknamed FROGS (bottom photo), and surface-to-surface missiles with nicknames like SCUD (top photo), and SCALEBOARD.

dual-capable fighters and fighter-bombers such as the swing-wing Fitter C, Fencer and Flogger. Further, the quantity of delivery systems has been increasing. They are improving their theater-wide command, control and communications systems.

A new and unique Soviet development is a multiple independently targetable reentry vehicle (MIRVed) mobile IRBM, the SS-X-20. The SS-X-20 uses the first two booster stages of the SS-X-16 intercontinental ballistic missile (ICBM). It is believed that the system will be deployed in a mobile or road-transportable mode.

The People's Republic of China (PRC) is expanding its capability to deploy and use nuclear weapons, although not as rapidly as previously estimated. Presently deployed forces consist of some short-, medium-, and intermediate-range ballistic missiles and a sizable medium bomber force capable of delivering nuclear weapons. These forces provide the PRC with a meaningful regional nuclear capability against the Soviet Union and Asian allies of the United States. Possibly as a consequence of attaining a small but capable theater nuclear force, the PRC is now placing major R&D emphasis on fielding by the mid-1980s an ICBM and SLBM system. Nonetheless, some emphasis is also being placed on developing a short-range or medium-range ballistic missile, for use with ground forces, and a nuclear-capable aircraft.

A different type of threat—that of the terrorist—has brought about a number of changes in the security measures for U.S. theater nuclear weapons. The number of identified terrorist organizations has been steadily increasing.

Nuclear storage sites are already well-guarded, and access to individual weapons is further inhibited by each weapon's own Permissive Action Link (PAL) locking device or combination lock. Nonetheless, a successful terrorist attack on a weapons storage site or theft of a nuclear weapon could have major repercussions and could jeopardize our whole deployment of nuclear weapons. To reduce this risk, we have initiated discussions with our allies and made plans to improve security procedures, and upgrade the physical security facilities at each of the remaining nuclear storage sites.

CURRENT APPROACH TO TNF

To ensure that TNFs continue to enhance deterrence, the following goals for TNF improvements have been formulated:

- The Warsaw Pact must appreciate that NATO has an assured capability to execute its theater-wide nuclear war options in the event of a surprise nuclear attack, and
- NATO must be capable of executing effective nuclear attacks against Warsaw Pact military forces, with discrimination and limited collateral damage, in response to major conventional or limited nuclear attack.

The first goal requires force *survivability*, under nuclear or non-nuclear attack, for a significant portion of TNFs and their essential support so as to provide a full range of response options. We are currently increasing survivability by a variety of means: through increased mobility, construction of hardened aircraft shelters, camouflage of fixed systems, active defenses and increased communications security.

The second goal requires greater *flexibility* in the use of existing nuclear forces for coordinated conventional-nuclear operations. The TNFs provide additional defense capabilities along the main Warsaw Pact axes of advance, and allow attack of selected military, political and economic targets throughout the theater. In these roles, TNFs must provide *significant advantage* over conventional alternatives, particularly when the possibility of enemy nuclear response is taken into account. TNFs are not intended as a substitute for conventional forces. TNFs would support and complement NATO's conventional forces by interdicting forces on Warsaw Pact territory and by directly supporting those defending forces on the battlefield.

This goal implies that we must have capabilities for undertaking such options as destruction of armored units near the forward edge of the battle (FEBA), attack of rear echelon armored units which are moving toward the FEBA, suppression of Warsaw Pact tactical support to their armored units (artillery, SSMs and rockets, tactical air and SAMs), and interdiction of the forward logistics base needed to support a fast-moving Warsaw Pact attack. These options would include attacks capable of being limited with respect to the area of attack, the types and numbers of weapons employed, and the types of targets attacked. Any retaliatory attacks against selected rearward Warsaw Pact targets should impress upon the Warsaw Pact nations the risks to them inherent in the situation.

DoD is proceeding in several program areas to ensure that U.S. forces are structured in consonance with planning goals. NATO's air assets will be made more flexible by the introduction of more secure nuclear bombs. The United States is also examining weapons with tailored effects, stand-off systems with internal guidance for higher accuracy and improved nuclear warheads. These warheads would lower collateral damage and strengthen all-weather attack capabilities.

These goals are also furthered by ensuring *responsiveness* comparable to

the positive control of strategic forces to assure timely and appropriate nuclear employment, and by exercising *control* over collateral damage to enhance the credibility of our TNF deterrent posture and reduce undesired damage should deterrence fail.

As we proceed to modernize our TNFs to attain these force characteristics the net result will be a force which could:

- cause significant loss to the attacker, including damage to his allies;
- cause him to reconsider his actions by demonstrating NATO's resolve and altering his assessment of early victory; and
- allow NATO to militarily exploit the use of nuclear weapons with conventional forces in order to bring about a termination/settlement of the conflict on terms which are advantageous to NATO.

Our NATO allies attach considerable importance to U.S. theater nuclear weapons in Europe; they regard them as concrete evidence of the U.S. commitment. We intend no changes which would undermine this commitment. Our allies will continue to share responsibility for the planning, deployment, and possible employment of theater nuclear weapons within NATO's defensive and negotiating strategy. Any adjustments to the U.S. nuclear posture in Europe will be made only after full consultation with our allies and will be based on a careful military assessment of the NATO force posture and the status of opposing Pact forces.

In Europe any new initiatives, and the manner in which we implement them, should renew allied confidence in the U.S. nuclear commitment and the feasibility of achieving our objectives without undermining the common defense.

Any changes in Asia will recognize the need to maintain the credibility of our assurances to our Asian allies of nuclear protection and discourage our allies from developing their own nuclear systems.

MODERNIZING TNFs

U.S. modernization goals fall into the following several major areas:

- **Ground Force Battlefield Support Systems**

Army ground force battlefield support systems can provide nuclear strikes near the forward edge of the battle area. They consist of tactical missiles (Lance), rockets (Honest John), and cannon artillery (155 mm and 8-inch). The United States will complete its planned deployment of Lance launchers and missiles in FY 1977. Most of these Lance launchers were deployed with U.S. forces in Europe as longer-range, more accurate, and more flexible replacements for Honest John and Sergeant launchers. Two Lance Battalions will be based in the United States, In addition, the U.S. will continue to provide Lance as a replacement for Sergeant and some Honest John launchers in allied forces.

Nuclear cannon artillery contributes to deterrence of both nuclear and conventional attacks by providing an important capability for deterring the massing of Pact artillery and armor, and substantially blunting a Pact exploitation attack by destroying armored units and their supporting artillery. This capability derives from cannon artillery weapons being numerous, having a high rate of fire, and being able to strike targets located close to the FEBA where target acquisition is best and air defense is dense. There is a need for cannon artillery capable of firing modern projectiles with advanced nuclear warheads, which overcome the limitation of the current nuclear artillery stockpile.

Engineering development is continuing on a new 8-inch nuclear projectile which has significant advantages over the current round. The new projectile has a much longer range which provides greater target coverage while operating farther from enemy forces. It has an improved warhead which greatly reduces undesired collateral damage. It is ballistically matched to the conventional round and will be highly accurate.

The FY 1977 Defense budget and Energy Research and Development Administration (ERDA) budget contain funds to continue development and begin production of the new 8-inch projectiles. Designs for a new, longer-range 155 mm nuclear projectile are also being studied, but there are no current plans to proceed with engineering development. The number of new 8-inch projectiles to be produced has not been decided.

The introduction of Lance and the proposed new 8-inch artillery shell will result in major improvements to the capability of TNFs to assist in blunting a massive Warsaw Pact armored exploitation attack. Nonetheless, we still need to improve the responsiveness and rate-of-fire of our battlefield nuclear systems. In-place units should be able to provide a greater concentration of nuclear strikes to those sections of the forward edge of the battle area where they may be most needed. Nuclear-capable units and nuclear warheads should be more transportable to other sectors of the front, as necessary. We are developing and testing the doctrine to do both.

- **Theaterwide Interdiction systems**

Considerable capability for pre-planned strikes against a variety of targets in the theater is currently provided by U.S. and allied nuclear-armed tactical aircraft, U.S. and Federal Republic of Germany (FRG) Pershing missiles, the UK Polaris force, and Poseidon reentry vehicles currently committed to Supreme Allied Command Europe (SACEUR) for use in pre-planned strikes in a theater-wide nuclear war. With these changes many of the land-based and carrier-based aircraft which might now be withheld

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for nuclear strikes on pre-planned targets could be available to support a conventional campaign or battlefield nuclear use. This augmentation, combined with the introduction of the Air Force's A-10, F-15, and F-16 aircraft, should improve significantly our conventional airpower.

Tactical air has an inherent ability to concentrate firepower quickly in critical areas (for example, against breakthroughs) and so may be able to take advantage of the improvements expected to the timely exploitation of tactical intelligence. Defeat and disruption of enemy forces from the battle area to the assembly area are being emphasized in mission studies. However, effective use of tactical air nuclear support in this role requires solving several problems: acquisition and identification of non-fixed targets at long range, penetration to target despite heavy air defense, and operation in all kinds of weather. The United States is continuing to deploy the newer version of the B-61 nuclear bomb, which provides greater flexibility, improved safety features, and more sophisticated devices for enhanced security.

• Other Nuclear Systems

The use of any nuclear weapons would decisively change the nature of a conflict. If this most serious step were to be taken, it should be done to induce the Soviet Union to terminate the conflict quickly. That is, it should be done with sufficient decisiveness and shock effect to cause the Soviets to reconsider their actions.

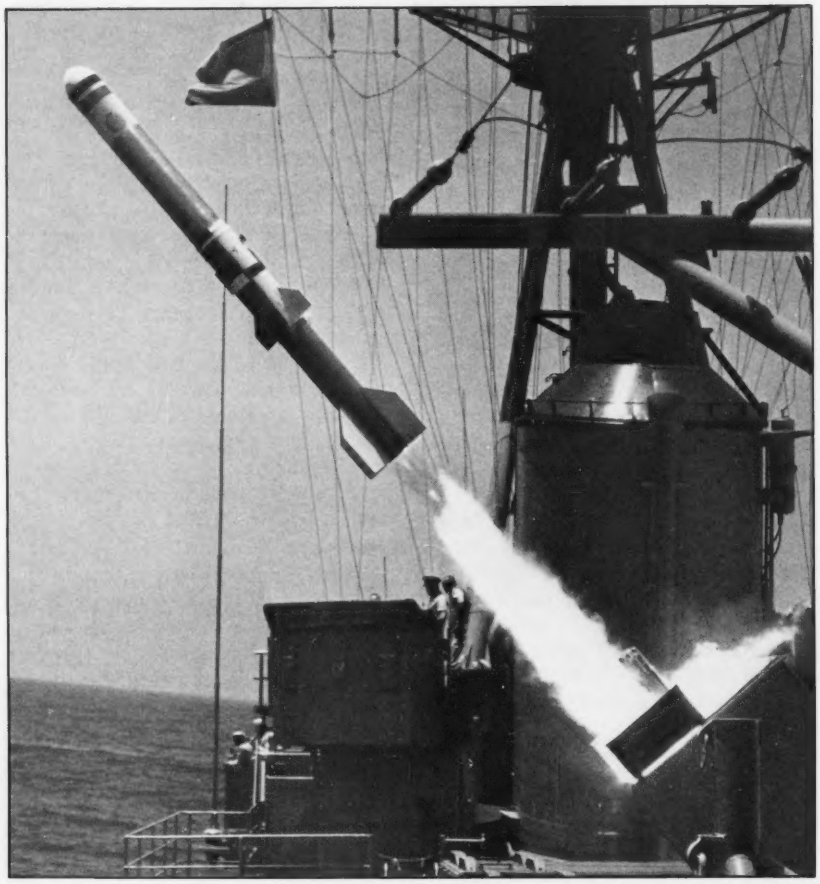
The United States currently has general purpose force Nike Hercules batteries in Europe, Continental United States (CONUS), Alaska, and South Korea. Our NATO allies also maintain a number of batteries.

The United States maintains nuclear and conventional anti-air warfare (AAW) weapons (primarily Talos and Terrier) for fleet air defense on three aircraft carriers and 35 cruisers and destroyers. A reassessment of afloat deployment concepts and shipfill requirements for nuclear AAW warheads has resulted in a decision to replace some of the on-board Talos and Terrier nuclear warheads with existing conventional warheads. In the future, we will consider phase-out of additional nuclear AAW weapons as equally effective, improved conventional warheads are deployed.

ADMs are nuclear demolition devices which are manually emplaced and detonated by timer or on command. They could be used to destroy bridges, cave in tunnels or defiles, cut roads, and otherwise supplement conventional barriers to slow enemy movements. ADMs would be most useful where it is difficult to bypass natural barriers, if nuclear release is given early in a conflict, and where time would not permit the installation of conventional obstacles (as would be the case in a surprise attack or unanticipated breakthrough). The utility of earth penetrator weapons in performing the nuclear barrier mission is now under study.

The U.S. maintains a variety of nuclear antisubmarine warfare (ASW) weapons. These include Subroc and Astor for use by submarines, Asroc for surface ships, and the MK-57 bomb for ASW aircraft. The MK-57 is also used by some allied ASW aircraft.

The U.S. Air Force's A-10 close air support aircraft is considered a significant weapon because of its inherent ability to concentrate firepower quickly in critical areas.



The U.S. Navy maintains a variety of nuclear anti-submarine warfare (ASW) weapons including the Asroc (above) for surface ships.

Effective ASW (whether in nuclear or conventional systems) requires detection, classification, and localization of enemy submarines before an attack can be made. Nuclear ASW weapons, because of their large lethal radius, allow for successful engagement of enemy submarines where localization is not exact. Nuclear ASW weapons also provide a hedge against hardening of enemy submarines and successful enemy countermeasures which reduce the effectiveness of homing torpedoes. Development of improved nuclear ASW systems will be considered where they provide significant advantages over conventional systems.

PEACETIME SECURITY AND STORAGE OF NUCLEAR WEAPONS

The Department of Defense (DoD) places the highest priority possible on protecting nuclear weapons, and security procedures and equipment are being improved. The Munich tragedy of 1972 highlighted for the world a serious threat, and actions have been taken to counter the well-financed, armed, and organized terrorist unit. Congress, properly, has taken an active interest in the security of nuclear weapons and has urged greater security measures at the sites, reduction of the number of weapons and sites world-wide, and improved safety devices on weapons. The improvements which DoD has made and will continue to make should increase the already extensive and redundant security of our nuclear weapons.

The Defense Department has an active program underway to upgrade the security of nuclear weapons while in storage, transit or on alert. A key element of the physical security program is the Permissive Action Link (PAL), a locking device integral to the weapon and designed to deny unauthorized access and prevent use of a weapon for a period of time. Theater nuclear weapons now in production have PAL devices which will disable the weapons permanently but non-violently if they are tampered with. Other measures to assure weapons security include the personnel reliability program (PRP), improved security criteria and standards for protecting nuclear weapons, and improved guidance with nuclear weapons movement, emergency evacuation, and destruction.

Peacetime security of nuclear weapons at storage sites continues to receive attention. The need for each storage site is reviewed regularly by the Defense Department on a site-by-site basis. In evaluating further changes in nuclear weapons storage abroad, a number of factors are being balanced, including survivability of warheads in peacetime storage to a surprise Warsaw Pact attack, security of individual sites under terrorist attack, capability for weapons dispersal in a crisis, and funding implications. We want to consult with appropriate allies before making specific site consolidation proposals to the host nations concerned.

In FY 1976, 197T and 1977, about $230 million was programmed for improvements to the security of the storage sites we will retain. The quality of the security of these sites will be improved by better training of security personnel, improved perimeter sensors and lighting, additional guards with more firepower and better communications, quicker reaction capabilities for security forces, plus hardened guard facilities and defensive positions. This program of upgrading security should provide greater peacetime security for TNFs, without compromising their effectiveness for deterrence and war termination.

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